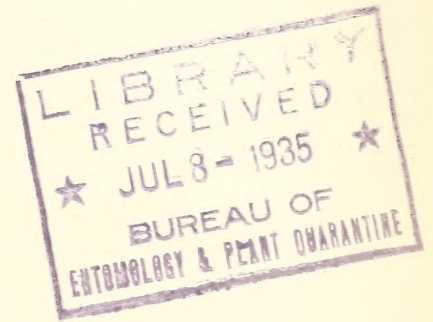


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INSECT PEST SURVEY BULLETIN

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INSECT NOTES FROM COSTA RICA IN 1934

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The following tables were prepared from notes sent in each month during 1934 by C. H. Ballou. The dates indicate the time specimens were collected and are not necessarily the period of activity of the insect, nor do the given localities limit the distribution of the species. The notes are arranged by orders and under the families in the larger orders. In order to condense the tables, certain localities are abbreviated as follows:

Muelle = Muelle de San Carlos

Paso Ancho = Paso Ancho de San Sebastian

Peralta = Peralta y Chitaria

San Antonio = San Antonio de Belen

San Isidro = San Isidro de Coronado

San Pedro = San Pedro de Montes de Oca

Santa Barbara = Santa Barbara de Heredia

The accompanying map was prepared for this publication by Rafael A. Chavarria, Director of the Centro Nacional de Agricultura.

Explanation of Map

The letters in the following list give some idea of the climate when considered with the region in which the place lies. The eastern slope (E) is a humid region; the western slope (W) is dry; the central plateau (C) is moderate; San Carlos (S) is very wet. The number following the name represents altitude in feet. The number preceding the name is given to locate the place on the map.

- | | | | |
|----|--|----|--|
| 1 | Alajuela (C) 4490 | 25 | Orosi |
| 2 | Boca de Konver (S) 600 | 26 | Orotina (W) 853 |
| 3 | Canada de Cot (C) 7250 | 27 | Pan de Azucar (W) 70 |
| 4 | Cartago (E) 5653 | 28 | Paso Ancho de San Sebastian (C)
Lower than San Jose |
| 5 | Cascajal (W) 448 | 29 | Peralta (E) 1055 and Chitaria several
hundred feet higher |
| 6 | Charui (=San Jose) | 30 | Quebrada Azul (S) About 800 |
| 7 | Concepcion (W) 1040 | 31 | Rio Segundo (C) 3940 |
| 8 | Coyolar (W) 700 | 32 | Sabanilla (C) |
| 9 | Cuesta del Macho (S) highest
part of San Carlos | 33 | Sanatorio Duran (C) 9090 |
| 10 | El Cacao (C) | 34 | San Antonio de Belen (C) 3119 |
| 11 | El Pizote (C) 6300 | 35 | San Dimas (C) |
| 12 | Escasu (C) 4500 | 36 | San Francisco de Dos Pios (C) |
| 13 | Florencia (S) | 37 | San Isidro de Coronado (C) 5580 |
| 14 | Granadilla (C) | 38 | San Jose (C) 4645 |
| 15 | Grecia (C) 4330 | 39 | San Lucas (W) 25 |
| 16 | Guadalupe (C) | 40 | San Pedro de Montes de Oca (C) 5300 |
| 17 | Lagunillas (W) | 41 | Santa Ana (C) 3900 |
| 18 | La Holanda (C) 7480 | 42 | Santa Barbara de Heredia (C) 5060 |
| 19 | La Uruca (C) 4550 | 43 | Santiago de Paraiso (E) 3536 |
| 20 | Limon (E) 10 | 44 | Sarchi (C) 5400 |
| 21 | Manzanillo | 45 | Tacares (C) 3200 |
| 22 | Muelle de San Carlos (S) 630 | 46 | Ujarras |
| 23 | Naranjo (C) 4673 | 47 | Villa Quesada (S) |
| 24 | Ochomogo (On the Divide) 6059 | 48 | Waldeck (E) 60 |



COSTA RICA

C O L L E C T E R A

	C o l l e c t e d o n		Date Through- out year	Notes
	Chrysophyllum cainito	Trichilia havanensis		
ANTHICIDAE	Persea americana			
	Acinetus arborescens	Spondias mombin	May 21	
CANTHARIDAE	Pastinaca sativa		June 11	
	Persea americana			
CARABIDAE	Coffea arabica		Jan. 5	Always taken be-
	Persea drymifolia		Sept. 30	tween leaves
	Vernonia brachiata			webbed together.
CERAMBYCIDAE	Tournefortia foetid-		May 26	Eats midribs of
	issima			leaves.
	Eriobotrya japonica		Nov. 12	
	Erythrina rubrinervia		Jan. 17	Called "Zapatero."
	Erythrina rubrinervia		May 26	
	Ipomoea tiliacea			
	Panicum barbinode	Sida rhombifolia	June 28	
CHRYSOMELIDAE	Saccharum officinarum	Zea mays	Aug. 28	
			Oct. 8	

C o l l e c t e d o n			Date	Notes
Cerotoma rogersi Jacoby Orosi Paso Ancho	Cestrum sp. Cucurbita pepo Galinzoga hispida Guarea caoba	Meibomia frutescens Phaseolus vulgaris Vicia faba Vigna sesquipedalis	Sept. 13 to Dec. 28	A serious pest of string beans.
Chalcophana mutabilis Harold Paso Ancho	Vernonia brachiata		May 31	
Chelymorpha gressoria Boh. Ochomogo	Asparagus officinalis		June 28	
Colaspis prasina Jacoby Guadalupe San Pedro	Croton gossypifolium Musa paradisiaca Pastinaca sativa Solanum lanceolatum var. sinuatum	Solanum melongena Solanum torvum Solanum tuberosum	Jan. 24 to June 22 Nov. 22 Dec. 20	Lives on wild Solanum and mi- grates to cul- tivated species, especially egg- plant.
Cryptocephalus trizonatus Sufr. Coyolar Paso Ancho San Isidro San Pedro	Amygdalus persica Capsicum annuum Diospyros virginiana Diphyssa robinoides Elephrium simaruba	Pisum sativum Prunus pissardi Sida rhombifolia Vernonia brachiata	Through- out year	
Cryptocephalus tessaratus Chevr.. San Pedro	Malus sylvestris		Jan. 5	
Deloyala testudinaria Boh. El Cacao Orosi San Pedro	Acnistus arborescens Solanum nigrum		May 26 Sept. 13 Nov. 6	

C o l l e c t e d o n			Date	Notes
Diabrotica balteata Lec. Coyolar Guadalupe Muelle Ochomogo Pan de Azucar San Pedro Santa Ana Villa Quesada	Amaranthus spinosus Capsicum annuum Celosia cristata Citrus sp. (toronjo) Crescentia cujete Crotalaria striata Cucurbita ficifolia Heliotropium indicum Iberis sp. Lactuca sativa	Lycopersicum esculentum Malus sylvestris Pelargonium zonale Persea americana Phaseolus vulgaris Pisum sativum Sida rhombifolia Solanum tuberosum Zea mays	Feb. 19 to Dec. 20	When very abundant, causes consider- able damage, es- pecially on beans and potatoes.
Diabrotica corrusca Jacoby Ochomogo San Pedro	Chayota edulis Cucurbita pepo Phaseolus vulgaris	Solanum tuberosum	June 28 Sept. 8	
Diabrotica dorsoplagiata Jacoby San Pedro	Citrus sinensis		June 1	In flowers.
Diabrotica fulvicornis Jacoby San Dimas San Pedro	Citrus grandis Citrus limonia Citrus nobilis de- liciosa Citrus sinensis Erythrina rubrinervia	Eugenia jambos Persea americana Saccharum officinarum Vernonia brachiata Vicia faba	Mar. 16 to Dec. 20	
Diabrotica nummularis Harold Cuesta del Macho Guadalupe Muelle Ochomogo Paso Ancho San Isidro Villa Quesada	Acacia melanoxylon Acanthus arborescens Ageratum conyzoides Amaranthus cruentus Amygdalus persica Anethum graveolens Annona cherimola Asclepias curassavica	Asparagus officinalis Eidens pilosa Bixa orellana Calocarpum mummosum Calyptreanthus costari- censis Cestrum macrophyllum Chayota edulis	Through- out year	Very abundant and very destructive to potatoes throughout June at San Pedro. A general feeder, often destroying vegetable and flower gardens.

Diabrotica nummularis--Cont'd	C o l l e c t e d o n	Date	Notes
	Chrysanthemum maximum		Lonchocarpus sp.
	Citrus limonia		Malus sylvestris
	Citrus sinensis		Parkinsonia aculeata
	Colocasia sp.		Persea americana
	Crotalaria striata		Phaseolus vulgaris
	Cucurbita ficifolia		Phytolacca decandra
	Cucurbita pepo		Polygonum acre
	Dianthus caryophyllus		Prunus armeniaca
	Diospyros kaki		Psidium guajava
	Erythrina rubrinervia		Raphanus sativus
	Eschscholtzia californica		Rosa spp.
	Eugenia uniflora		Rumex crispus
	Ficus carica		Saccharum officinarum
	Hedychium coronarium		Solanum nigrum
	Hibiscus rosa-sinensis		Solanum tuberosum
	Iberis sp.		Spondias mombin
	Impatiens balsamina		Terminalia catappa
	Ipomoea batatas		Vicia faba
	Ipomoea tiliacea		Vitis vinifera
	Lagerstroemia speciosa		Zea mays
			Zinnia elegans
Diabrotica porracea Harold	Annona cherimola	Jan. 18	General feeder.
Alajuela	Chayota edulis	to	Destroyed candy-
Guadalupe	Citrus limonia	Sept. 11	tuft in July
Ochomogo	Coffea arabica		at Guadalupe.
San Pedro	Conostegia lanceolata		
	Cornutia cymosa		
Diabrotica viridula Fab.	Cucurbita pepo	March 28	Abundant on corn
El Cacao	Eschscholtzia californica	to	in August, es-
Guadalupe	Iberis sp.	Dec. 20	pecially on
Ochomogo	Inga paterno		the silk.
San Pedro	Pennisetum purpureum		
Villa Quesada	Phaseolus vulgaris		

C o l l e c t e d o n			Date	Notes
Diabrotica vittata Fab.	Citrus sinensis		Feb. 15	Very abundant on
Ochomogo	Cucurbita ficifolia		June 28	various cucur-
Peralta	Cucurbita pepo		Aug. 22	bitaceous plants
San Dimas	Raphanus sativus		Dec. 20	
San Pedro				
Epitrix fuscata Jac.-Duv.	Capsicum annuum	Solanum tuberosum	Feb. 4	A serious pest of
Paso Ancho	Lycopersicon esculen-		to	potato and to-
	tum		Dec. 30	mato.
Galeruca encaustica Germ.	Casuarina equiseti-	Inga edulis	Apr. 20	
Granadilla	folia	Persea americana	to	
Paso Ancho	Citrus nobilis do-		June 28	
San Pedro	liciosa		Oct. 25	
	Coffea arabica		to	
			Nov. 26	
Homophoea cyanipennis octo-	Aenictus arboreus	Gliricidia maculata	Feb. 5	Sometimes harmful
maculata Crotch	Allium cepa	Impatiens balsamina	to	on tender growth,
Coyolar	Amaryllis sp.	Ipomoea batatas	Dec. 27	especially of
Cuesta del Macho	Amygdalus persica	Ligustrum japonicum		avocado.
El Cacao	Ancardium rhinocarpus	Malus sylvestris		
Granadilla	Asparagus officinalis	Nasa textilis		
Guadalupe	Canna indica	Pennisetum purpureum		
Orosi	Citrus grandis	Persea americana		
Paso Ancho	Citrus medica	Persea drymifolia		
San Pedro	Citrus sinensis	Phaseolus vulgaris		
Santa Ana	Coffea arabica	Saccharum officinarum		
Villa Quesada	Coix lachryma-jobi	Soja max		
	Croton gossypifolium	Tetragonia expansa		
	Dahlia rosea	Vitis vinifera		
	Dioscorea sp.	Zea mays		
	Gardenia japonica			

C o l l e c t e d o n			Date	Notes
Leptinotarsa undecimlineata Stahi	Phytolacca decandra			Very common on
Granadilla	Saccharum officinarum			Solanum spp.
La Holanda	Solanum aculeatissimum			
Muelle	Solanum torvum			
Ochomogo				
Orosi				
San Dimas				
San Pedro				
Metrioria emarginata Boh.	Hamelia erecta		May 26	
San Pedro	Ipomoea batatas		Oct. 5	
Nodonota irazuensis Jacoby	Acalypha wilkesiana		Jan. 5	Probably the most
El Cacao	Ageratum conyzoides		to	harmful insect
Grecia	Amaranthus cruentus		Dec. 31	observed during
Guadalupe	Amygdalus persica			the year. It
Ochomogo	Annona cherimola			feeds especially
Paso Ancho	Annona reticulata			on tender new
San Pedro	Asclepias curassavica			leaves.
Santa Ana	Bidens pilosa			
Villa Quesada	Bixa orellana			
	Boehmeria nivea			
	Calliandra grandiflora			
	Callistemon lanceolatus			
	Calyptanthus costaricensis			
	Camellia japonica			
	Carissa grandiflora			
	Cestrum aurantiacum			
	Cestrum lanatum			
	Chayota edulis			
	Chenopodium ambrosioides			
	Chrysanthemum			
	Cichorium intybus			
	Citrus aurantifolia			
	Citrus limonia			
	Citrus sinensis			
	Coffea arabica			
	Coleus blumei			
	Conostegia lanceolata			
	Corcopsis lanceolata			
	Crotalaria striata			
	Croton gossypifolium			
	Cucurbita pepo			
	Cupressus benthami			
	Cydonia oblonga			
	Dahlia rosea			
	Dianthus caryophyllus			
	Diospyros kaki			
	Diphysa robinoides			
	Eriobotrya japonica			
	Erythrina rubrinervia			
	Eschscholtzia californica			
	Eugenia uniflora			

Nodonota irazuensis--Cont'd	C o l l e c t e d o n		Date	Notes
Ficus carica		Prunus avium		
Fragaria chiloensis		Prunus pissardi		
Gliricidia maculata		Psidium guajava		
Hibiscus rosa-sinensis		Pyrus communis		
Impatiens balsamina		Rapthanus sativus		
Inga paterno		Rosa spp.		
Iponoea batatas		Rumex crispus		
Iponoea tiliacea		Saccharum officinarum		
Lippia berlandieri		Salvia sp. (Cincha de		
Lalacra radiata		Guterata)		
Malus sylvestris		Schinus molle		
Mangifera indica		Solanum tuberosum		
Morus rubra		Sterculia diversifolia		
Myosotis sylvatica		Tagetes erecta		
Panicum barbinode		Terminalia catappa		
Pastinaca sativa		Thuja plicata		
Pelargonium graveolens		Tripsacum laxum		
Pelargonium zonale		Tropaeolum majus		
Persea americana		Verbena		
Persea drymifolia		Vernonia brachiata		
Phaseolus vulgaris		Vicia faba		
Poinsettia pulcherrima		Vigna sesquipedalis		
Polygonum acre		Vitis vinifera		
Prunus armeniaca		Zea mays		
Ageratum conyzoides		Citrus sinensis	Through-	Especially
Amygdalus persica		Coffea arabica	out	harmful to
Casuarina equisetifolia		Conostegia lanceolata	year.	roses.
Chenopodium ambrosioides		Couralea rosea		
Chrysanthemum maximum		Crotalaria striata		
Citrus limonia		Cupressus bonthamii		
		Diospyros virginiana		
		Dianthus caryophyllus		
Nodonota lateralis Jacoby				
Coyolar				
El Cacao				
Grecia				
Guadalupe				
San Isidro				
San Pedro				

Nodonota lateralis--Cont'd.	C o l l e c t e d o n	Date	Notes
Oedionychis tenuicineta Jacobv San Pedro	Eugenia uniflora Galinsoga hispida Hicoria pecan Inga paterno Malus sylvestris Mangifera indica Myosotis sylvatica Panicum barbinode Pelargonium graveco- lens Amygdalus persica	Phaseolus vulgaris Prunus salicina Pyrus communis Rosa spp. Vernonia brachiata Vitis vinifera Zinnia clogans Zea mays	Usually taken at lights.
Pachybrachys femoratus Oliv. El Cacao San Pedro	Eugenia uniflora Persca americana Prunus cerasifera	Feb. 5 to Dec. 20	
Prionodera wagneri Harold Ochomogo	Zea mays	June 28	
COCCINELLIDAE			
Epilachna borealis Fab.	Cestrum sp. Cucurbita pepo Jatropha urens Luffa cylindrica Myosotis sylvatica Phaseolus vulgaris	June 18 to Dec. 9	
Epilachna corrupta Muls. Grecia	Phaseolus vulgaris	Dec. 7	
Epilachna defecta Muls. Guadalupe Orosi Paso Ancho	Acnistus arborescens Cestrum lanatum Cestrum macrophyllum Coffea arabica	March 2 to Dec. 22	A pest of Zorrillo (Cestrum spp.) throughout the year.

C o l l e c t e d o n			Date	Notes
Epilachna defecta--Cont'd.				
San Pedro	Croton gossypifolium	Zea mays		
Santa Ana	Vernonia brachiata			
Epilachna vincta Crotch	Podachonium alatum		Jan. 26	
San Isidro				
Epilachna virgata Muls.	Citharexalum caudatum		Fe. 4	Seriously damages
Paso Ancho			May 28	Dama.
San Pedro			Dec. 25	
ELATERIDAE				
Agriotes sublineatus Champ.	Citrus sinensis		May 26	
San Pedro	Erythrina rubrinervia		to June 5	
EROTYLIDAE				
Cypherotylus cleovatus Fab.	Coffea arabica		Apr. 5	
San Pedro			Sept. 10	
Mycotretus luteipes Lac.	Pleurotus sp.		May 29	
San Pedro			Nov. 22	
LYCIDAE				
Calopteron bifasciatum Gorb.	Casuarina equiseti- folia		Apr. 20	
San Pedro				
MALACHIDAE				
Anthocomus basilis Erichs.	Dovyalis hebecarpa		May 9	
San Pedro				
NITIDULIDAE				
Colopterus morio Erichs.	Zantedeschia aethio- pica		Apr. 5	In flower.
San Pedro				

S C A R A B A E I D A E			C o l l e c t e d o n		Date	Notes
Anomala testaceipennis Blanch. San Pedro	Rosa sp.				Oct. 22	
Euphoria candezei Janson Guadalupe	Couralea rosea				July 2	
Faula brunneipennis Bates Ochomogo San Jose San Pedro	Anethum graveolens Asparagus officinalis Capsicum annuum Casuarina equiseti- folia Chayota edulis Coffea arabica Hicoria pecan	Malus sylvestris Pelargonium zonale Persea americana Persea drymifolia Pyrus communis Rosa sp. Vitis vinifera			May 14 to July 2	Destroyed a grape crop and damaged avocado at San Pedro early in June
Gymnetis liturata Oliv. Guadalupe San Pedro	Coffea arabica Ficus carica Persea americana Vernonia brachiata				Jan. 29 to Feb. 16 Nov. 20 to Dec. 17	Sucking sap at wound in bark of avocado. Eating fruit of fig.
Hoplia argyrites Bates San Pedro	Citrus sinensis Persea drymifolia Prunus pissardi				May 15 June 5	Eating flowers of avocado.
Hoplia surata Bates San Pedro	Malus sylvestris Spondias mombin				May 22, 26	
Macroductylus lineatus Chev. San Pedro	Persea americana				May 15 -30	Doing considerable damage.

C o l l e c t e d o n			Date	Notes
Macroductylus suavis Bates Paso Ancho San Pedro	Calea urticifolia Citrus limonia Citrus sinensis	Cydonia oblonga Persea drymifolia Spondias mombin	May 28 to July 2	Damages avocado, especially flowers.
Macroductylus sylphus Bates Paso Ancho San Pedro	Acanthus arborescens Citrus aurantifolia Malus sylvestris Persea americana	Persea drymifolia	May 15 to June 18	Frequents flowers of Citrus spp. and destructive to avocado.
Pachystethus micans Burm. San Pedro	Conostegia lanceolata		May 26	In flowers.
Pachystethus nitidula Blanch. San Pedro	Rosa sp.		Oct. 22	
Strigoderma rutelina Bates El Cacao	Phaseolus vulgaris		Nov. 27	
STAPHYLINIDAE				
Poderus lactus Erichs. San Pedro	Fragaria chiloensis		Oct. 5	
Philonthus feralis Erichs. San Pedro	Pennisetum purpureum		Jan. 3	
TELEBRIONIDAE				
Lobometopon guatemalensis Champ.	Amygdalus persica Canna indica Carica papaya Cestrum macrophyllum Citrus limonia Citrus nobilis de- liciosa Citrus sp. (tangelo)	Citrus sp. (toronjo) Coffea arabica Ligustrum japonicum Malus sylvestris Mangifera indica Persea americana Persea drymifolia Prunus pissardi		A tenebrionid ob- served feeding on pollen of peach, plum, and avocado, probably not a pest. Ob- served eating peach- rust fungus.

Lobometopon guatemalensis-- Cont'd	Collected on	Date	Notes
	Prunus salicina Terminalia catappa Thuinbergia erecta	Vernonia brachiata Vicia faba Vigna sesquipedalis	
Schoenicus panamensis Champ. Grecia Guadalupe Paso Ancho San Pedro	Acanthus arborescens Amygdalus persica Chenopodium ambrosi- oides Citrus aurantium Citrus sinensis Coffea arabica	Hibiscus rosa-sinensis Malus sylvestris Pennisetum purpureum Persea americana Persea drymifolia Vigna sesquipedalis	A tenebrionid; frequents flowers. Prob- ably not a pest. Eats pollen.
REYICHOPIORA Anyptotactus exilis Boh. San Pedro	Amygdalus persica Citrus nobilis delici- osa	Citrus sinensis	Jan. 6-27 Nov. 30
Cleistolophus similis Chevr. San Pedro	Chenopodium ambrosi- oides Persea americana	Vernonia brachiata	May 24 to June 5
Conotrachelus flavangulus Champ. San Pedro	Cucurbita pepo		Sept. 11
Conotrachelus perseae Barber San Pedro	Persea americana		Jan. 5 Aug. 13, 20 Nov. 20
Copturus constrictus Champ. San Pedro	Persea americana		Dec. 19
			Reared from larva in avocado seed. Usually found be- tween leaves webbed together by caterpillars.
			Destroying avocado.

C o l l e c t e d o n			Date	Notes
Cosmopolites sordidus Germ. Waldeck	Musa sapientum		Feb. 13	Damaging bulbs. An important pest.
Eurhinus festivus Fab. San Pedro	Cestrum macrophyllum Vernonia brachiata		May 18 Nov. 19	
Geraeus lentiginosus Boh. El Cacao San Pedro	Chrysanthemum maximum Eugenia jambos Phaseolus vulgaris Vicia faba		Apr. 20 Nov. 7 Dec. 20, 30	
Lechriops sp. San Pedro	Erythrina rubrinervia Vernonia brachiata		May 19 June 30	
Micentrus lineicollis Boh. San Pedro	Anacardium spinosus Chrysanthemum maximum Fragaria chiloensis	Poinsettia pulcherrima.	Oct. 5 to Dec. 30	
Pandelecius crubescens Champ. Gundalupe San Pedro	Persea americana Persea dr. mifolia		Apr. 24 to Nov. 28	Eats avocado leaves.
Rhodobaenus bicinctus Chev. Ochomogo	Verbesina turbacensis		June 28	
Rhodobaenus pantherinus Champ. Ochomogo	Verbesina turbacensis		June 28	
Steirarrhinus nebulosus Champ. Paso Ancho San Pedro	Amygdalus persica Blakea gracilis Boehmeria nivea Cestrum lanatum Citharexylum caudatum Citrus limonia	Citrus nobilis Citrus sinensis Coffea arabica Dovyalis hebecarpa Triumfetta josefina Vernonia brachiata	May 7- Aug. 7	

D I P T E R A

C o l l e c t e d o n			Date	Notes
Anastrepha serpentina Wied. San Pedro	Chrysophyllum sp.		Feb. 27 June 22 July 28	Larvae destroy fruit of star- apple. Adult reared July 28.
Anastrepha striata Schin. San Pedro	Mangifera indica Persca sp. Psidium guajava		Apr. 29 May 28 Aug. 20	Maggots in mango and guava fruit. Adult emerged May 28. Adults feed at avocado flowers.
Eusimulium callidum D. & S. San Pedro	Man		June 2 Oct. 8, 10	
Eusimulium metallicum Bell. Orosi San Pedro	Man		Through- out year.	A very trouble- some pest.
Eusimulium ochraceum Walk. San Pedro	Man		Feb. 26	
Eusimulium quadrivittatum Loew San Pedro	Man		June 4 to July 19. Dec. 15	
Raynchosciara brevicornis Guer. San Pedro	Amygdalus persica Fortunella japonica Malus sylvestris Persea americana Solanum muricatum		June 18 Dec. 10- 28	Probably not a pest.

C o l l e c t e d o n			Date	Notes
Tetraeauresta obscuriventris Loew San Pedro	Erythrina rubrinervia Vernonia brachiata		May 18	Abundant on the leaves.
Toxotrypana curvicauda Gerst. Grecia	Carica papaya		Oct. 16	Destroys all papaya fruit in some regions, especially in San Pedro.
H E M I P T E R A				
Acanthocephala declivis var. guatemalena Dist. San Pedro	Calyptanthus costaricensis Casimiroa edulis Citrus aurantium Citrus grandis Citrus limonia	Citrus nobilis deliciosa Citrus sinensis Citrus sp. (tangelo) Citrus sp. (toronjo) Poncirus trifoliata	Jan. 6 to Dec. 28	Very numerous on citrus fruits, causing the tips of branches to wilt.
Acrosternum marginatum P. de B. Villa Quesada	Citrus sinensis		March 27	
Anasa andresii Guér. Peralta San Pedro	Cucurbita pepo		Feb. 15 Sept. 11 Oct. 1	
Anasa scorbatica Fab. San Dimas San Pedro	Cucurbita pepo		Aug. 31 Oct. 10	
Anisoscelis gradadia Dist. San Pedro	Passiflora quadrangularis		Nov. 20	
Archimerus scutellaris Stahl Faso Ancho San Pedro	Calea urticifolia axillaris Coix lachryma-jobi		May 26, 31 Sept. 13	Causes tips to wilt.

C o l l e c t e d o n			Date	Notes
Cepaneus odiosus Stahl	Cymbopogon rufus		July 7	
Coyolar	Zea mays		Sept. 16	
San Lucas				
Chlorocoris aberrans Dist.	Persea americana		March 17	
San Pedro				
Collaria oleosa Dist.	Panicum barbinode		Feb. 14	A mirid, abundant
El Cacao	Paspalum notatum		March 28	and harmful on
Lagunillas	Phaseolus vulgaris		Sept. 18	grasses, caus-
San Pedro	Sanchezia nobilis		to	ing leaves to
Santa Ana	Zea mays		Dec. 21	dry.
Villa Quesada				
Corecoris sp.	Chayota edulis		June 14	
San Pedro	Coffea arabica	Ipomoea tiliacea	July 3	
		Tournefortia foetidis-	Sept. 25	
		sima		
Corizus sidae Fab.	Malacra radiata		June 14	
San Pedro				
Corythucha gossypii Fab.	Amygdalus persica		Apr. 1	Seriously damages
Alajuela	Annona muricata			soursop.
San Jose				
San Pedro				
Cosmopepla decorata Hahn	Apium ammi		May 26	A pentatomid.
San Pedro				
Creontiades rubrinervis	Coffea arabica	Persea americana	Jan. 25-	A mirid.
Stahl	Hibiscus rosa-sinensis	Vicia faba	July 12	
San Pedro	Malus sylvestris			
Cyrtopeltis notatus Dist.	Lycopersicum esculon-		Feb. 4 to	A mirid pest of
Paso Ancho	tum		June 18.	tomato and to-
San Pedro	Nicotiana tabacum		Nov. 13-	bacco.
			Dec. 22	

C o l l e c t e d o n			Date	Notes
Dinocoris tripterus Fab. Peralta	Mangifera indica		Aug. 4	A pentatomid.
Dysdercus mimus Say Paso Ancho San Pedro	Annona cherimola Croton gossypifolium		May 31 June 15	A pyrrhocorid.
Dysdercus obliquus H. S. Granadilla San Pedro	Althea rosea Canna indica Citrus sinensis	Coffea arabica Hibiscus rosa-sinensis	Sept. 11 to Dec. 10	Serious pest of hollyhock and other malva- ceous ornamentals.
Edessa cornuta Burm. San Pedro	Ipomoea batatas Ipomoea tiliacea		Aug. 31 Oct. 5	A pentatomid.
Edessa junix Stahl El Cacao	Coffea arabica		Nov. 6	
Edessa salvini Dist. San Pedro	Croton gossypifolium		May 26	
Euschistus bifidulus P. de B. San Lucas	Zea mays		July 8	A pentatomid.
Gargaphia patricia Stahl Paso Ancho San Dimas San Isidro San Pedro	Acnistus arborescens Croton gossypifolium		Jan. 26 May 31 Aug. 31	A tingidid.
Halticus citri Ashm. El Cacao Paso Ancho San Pedro Santa Barbara	Capriola dactylon Cucurbita pepo Gomphrena globosa Jacobinia coccinea Lactuca sp.	Phaseolus vulgaris Ranhanus sp. Solanum tuberosum Tetragonia expansa Zantedeschia aethio- pica	Feb. 1 to Apr. 5 Nov. 7- Dec. 27	A mirid, one of the most serious pests of the vegetable garden.

C o l l e c t e d o n		Date	Notes
Hypselonotus atratus Dist. El Cacao	Ananas sativus	Jan. 16	A coreid.
Guadalupe	Coffea arabica	to	
Orosi	Conostegia macrantha	May 31	
Paso Ancho	Cucurbita pepo	Sept. 13	
San Pedro	Dovyalis hebecarpa	Dec. 25	
Villa Quesada	Lactuca sativa		
	Polygonum punctatum		
Jadera acola Dallas San Pedro	Persea americana	March 23	A coreid.
Jalysus mollitus Dist. El Cacao	Pelargonium zonale	Nov. 6, 7	A neidid.
Paso Ancho	Phaseolus vulgaris	Dec. 25	
Leptobrysa chiriquensis Champ.	Persea americana	Nov. 20, 26	A tingidid.
San Pedro			
Leptoglossus stigma Hbst. San Pedro	Bixa orellana Carica papaya Morus rubra	Feb. 6 to Apr. 5 Nov. 30 Dec. 19	A coreid.
Leptoglossus zonatus Dallas El Cacao	Amygdalus persica	Through-	Damages fruit
Grecia	Bixa orellana	out	of tomato
Ochomogo	Capsicum annuum	year	severely.
San Dimas	Carica papaya		
San Pedro	Citrus nobilis do-		
Santa Ana	liciosa		
	Citrus sinensis		
	Cucurbita pepo		
	Cyphomandra betacea		
	Ficus carica		
	Lycopersicum esculen-		
	tum		
	Persea americana		
	Phaseolus vulgaris		
	Prunus armeniaca		
	Vitis vinifera		

C o l l e c t e d o n			Date	Notes
Lygaeus bistrigularis Say San Pedro	Coffea arabica Cucurbita pepo		Aug. 17 May 17	A lygaeid.
Lygaeus circumlitus Stahl San Pedro	Annona cherimola Ligustrum japonicum Persea americana		May 18 Dec. 13	
Lygaeus reclusatus Say Santa Ana	Ipomoea tiliacea Gramineae		Nov. 22	
Megalotomus femoratus Dist. El Cacao	Phaseolus vulgaris		Nov. 7	A coreid.
Mormidea notulata H. & S. El Cacao	Phaseolus vulgaris		Nov. 7	A pentatomid.
Nezara viridula L. Ochomogo San Pedro	Amygdalus persica Brassica oleracea botrytis Brassica oleracea capitata Cucurbita pepo Impatiens balsamina	Lycopersicum esculon- tum Pyrus communis Raphanus sativus Solanum tuberosum Vigna sesquipedalis	June 18 to Dec. 20	A pentatomid.
Oncopeltus cingulifer Stahl Cuesta del Macho Muelle Orosi Paso Ancho Rio Segundo San Pedro Santa Ana Villa Quesada	Asclepias curassavica Citrus sinensis Vernonia brachiata		Mar. 25 to Nov. 22	A lygaeid, com- mon on milkweed.

C o l l e c t e d o n		Date	Notes
Oncopeltus fasciatus Dallas Orosi San Pedro Santa Ana	Asclepias curassavica	Sept. 13	A milkweed pest.
	Coffea arabica	Oct. 8 Nov. 22	
Pachycoris torridus Scop. Orosi Paso Ancho San Pedro	Acnistus arborescens	Sept. 13	A scutellerid.
	Asparagus plumosus Malus sylvestris Saccharum officinarum	to Nov. 19	
Paracalocoris annulatus Dist. San Pedro	Chalcas exotica	Feb. 5	A mirid.
	Coffea arabica Malus sylvestris	July 2- Aug. 20 Dec. 20	
Phthia lunata Fab. San Pedro	Cucurbita pepo	Dec. 30	A coreid.
Poecilocapsus frumentarius Dist. Guadalupe San Pedro	Vernonia brachiata	Sept. 7 Dec. 17	A mirid, sometimes predacious.
Polymerus cuneatus Dist. San Pedro	Crotalaria juncea	Nov. 19	A mirid.
Proxys punctulatus Beauv. Coyolar San Lucas Santa Ana	Amygdalus persica Bromelia pinguin Persea americana Spondias mombin	July 7 to Nov. 22	A pentatomid.
Pycnoderes incurvus Dist. Peralta San Pedro	Cucurbita ficifolia Cucurbita pepo Ipomoea tiliacea	Feb. 15 Aug. 31 to Dec. 20	A mirid.

C o l l e c t e d o n			Date	Notes
Stenomacra marginella H. & S.	Amygdalus persica	Ipomoea tiliacea	Through- out year.	A pyrrhocorid, serious pest of avocado and coffee.
Granadilla	Annona cherimola	Lagerstroemia speciosa		
Guadalupe	Cestrum lanatum	Mangifera indica		
Ochomogo	Citrus aurantium	Morus rubra		
San Dimas	Citrus sinensis	Persea americana		
San Pedro	Coffea arabica	Vernonia brachiata	Jan. 30- June 18 Sept. 17 Dec. 17	A pentatomid.
	Ficus religiosa			
Thyanta perditor Fab.	Asparagus officinalis	Malacra radiata		
Coyolar	Citrus aurantifolia	Persea americana		
San Pedro	Cupressus benthami	Solanum tuberosum		
	Ficus religiosa	Tetragonia expansa		
	Lycopersicum esculen- tum			

H O M O P T E R A

ALEYRODIDAE

Aleurocanthus woglumi Ashby	Citrus aurantifolia	Poncirus trifoliata	Through- out year	A parasite, Eret- mocerus serius Silv., is estab- lished at La Uruca. It was liberated at Heredia in August.
Alajuela	Citrus limonia			
Coyolar	Citrus medica			
Grecia	Citrus nobilis			
Guadalupe	Citrus sinensis			
La Uruca	Coffea arabica		Feb. 4 to Sept. 3	
Paso Ancho	Eugenia jambos			
Rio Segundo	Eugenia uniflora			
San Antonio	Persea americana			
San Pedro	Persea drymifolia			
Aleurothrixus howardi Quaint.	Citrus limonia			
Paso Ancho	Citrus sinensis			
San Jose	Hamelia erecta			
San Pedro	Persea americana			

A P H I I D A E

C o l l e c t e d o n		Date	Notes
Aphis gossypii Glov. San Pedro	Hibiscus rosa-sinensis Persea sp.	Aug. 8 Dec. 26	Caused considerable damage in April and May.
Aphis illinoisensis Shim. San Pedro	Vitis labrusca Vitis vinifera	Apr. 19- June 18	
Aphis pomi DeG. Guadalupe San Jose San Pedro	Cydonia oblonga Eriobotrya japonica Malus sylvestris Pyrus communis	Through- out year	Especially harmful on first leaves of newly budded stock.
Aphis spiraeicola Patch San Pedro	Citrus nobilis delici- osa Fortunella japonica	Jan. 5- Aug. 13	
Eriosoma lanigera Hausm. Guadalupe	Malus sylvestris	July 14	
Rhopalosiphum pseudobrassicae Davis San Pedro	Brassica japonica	Dec. 28	An important pest.
Toxoptera aurantiae Boyer Granadilla Guadalupe Ochomogo Paso Ancho Peralta San Isidro San Pedro	Chalcas exotica Citrus limonia Citrus nobilis de- liciosa Citrus sinensis Coffea arabica Ficus religiosa Fortunella japonica	Through- out year	Causes damage, es- pecially on ten- der shoots.
CERCOPIDAE Cephus siccifolius Walk. San Pedro	Amygdalus persica Persea drymifolia	Jan. 6, 25	Forms masses of foam- like spittle that

Cephus siccifolius--Cont'd	Collected on	Date	Notes
Clastoptera funesta Stahl Cascajal San Pedro Villa Quesada	Gardenia florida Guzmania ulmifolia Polypodium punctatum Verbesina turbacensis	Dec. 18, 27	hang over one foot from the branches, and which are blown around by the wind.
Epicranton championi Fowl. San Pedro	Anacardium occidentale Calyptranthes costaricensis	March 7, 27 May 24	
Monocophora bicincta Say Coyolar El Cacao Ochomogo Paso Ancho San Pedro Santa Ana Villa Quesada	Cestrum aurantiacum Mangifera indica Malus sylvestris Anethum graveolens Capriola dactylon Musa paradisica Paspalum notatum Zea mays	May 21 Oct. 5 to Dec. 14 March 26 June 26- Nov. 22	
Monocophora postica Walk. Alajucla Boca de Kopper Floresia Orosi Villa Quesada	Calceolaria urticifolia Panicum barbinode Paspalum notatum Zea mays	March 26- 30 June 26 Aug. 10- Sept. 13	
CHERMIDAE Freysuila ernstii Schwarz San Pedro	Cedrela montana mexi- cana Guarea caoba	Jan. to May Oct. 10	Very abundant and injurious.

CICADELLIDAE			C o l l e c t e d o n		Date	Notes
Agallia novella tropicalis			Amaranthus spp.		Oct. 25-	
Van D.			Lantana camara		Dec. 24	
El Cacao			Phaseolus vulgaris			
Granadilla						
San Pedro						
Aligia modesta O. & B.			Chayota edulis		Aug. 31	
El Cacao			Gramineae		Nov. 7-	
Grecia			Hibiscus rosa-sinensis		Dec. 7	
San Pedro			Phaseolus vulgaris			
Santa Ana						
Aulacizes panamensis Fowl.			Citrus limonia		Jan. 6	
San Pedro			Eugenia jambos		June 27	
Aulacizes thunbergi Stahl			Acanthus arborescens		Aug. 29	
Orosi			Jatropha urens		Sept. 13	
Ujarras						
Carneiocephala sagittifera			Amygdalus persica		Jan. 29	Very abundant on Bermuda grass.
Uhl.			Capriola dactylon		to March 6	
Coyolar			Hibiscus rosa-sinensis		Sept. 18	
El Cacao			Phaseolus vulgaris		to Dec. 7	
Grecia						
San Antonio						
San Pedro						
Santa Ana						
Cainaia bella Bruner & Met-			Persea americana		March	
calf					Aug. -	
San Pedro					Nov.	
Cicadella areolata Sign.			Amaranthus cruentus		Jan. 12	
Coyolar			Annona cherimola			Cucurbita pepo
El Cacao			Boehmeria nivea			Fragaria chiloensis
San Pedro			Calyptanthus costari-			Gramineae
			censis			Hamelia erecta
						Pelargonium zonale

Cicadella areolata--Cont'd.			C o l l e c t e d o n		Date	Notes
Cicadella coeruleovittata Sign. El Cacno Orosi San Dimas San Pedro Villa Quesada			Persea drymifolia	Tripsacum laxum		
			Phaseolus vulgaris	Verbena litoralis		
			Saccharum officinarum	Vitis vinifera		
			Spondias mombin	Zea mays		
			Tetragonia expansa			
Cicadella flaviguttata Latr. Peralta			Brassica spp.	Persea americana	Through-	
			Daucus carota	Phaseolus vulgaris	out	
			Galinsoga hispida	Rumex crispus	year.	
			Ipomoea spp.	Tetragonia expansa		
			Lycopersicum esculentum	Verbesina turbacensis		
Cicadella lutea Sign. San Pedro			Panicum barbinode	Vernonia brachiata		
			Pennisetum purpureum			
			Solanum torvum		Feb. 14	
			Croton gossypifolium		Through-	
			Vernonia brachiata		out	
Cicadella miniaticeps Fowl. Orosi Peralta San Isidro San Pedro Villa Quesada			Calea urticifolia	Tropaeolum majus	Jan. 26-	
			Crotalaria juncea	Zea mays	March 26	
			Hibiscus rosa-sinensis		June 7-	
			Rumex crispus		Dec. 21	
			Sanchezia nobilis			
Cicadella mollicolla Fowl. Alajuela San Pedro Santa Ana			Spondias cytherea			
			Paspalum notatum		Jan.	
					Aug. 10-	
					22	
					Nov. 22	

	C o l l e c t e d o n		Date Through- out year	Notes
Cicadella occatoria Say				
Coyolar	Acnistus arborescens	Lantana camara		
Cuesta del Macho	Amygdalus persica	Malacra radiata		
El Cacao	Arracacia xanthorrhiza	Malus sylvestris		
Grecia	Boehmeria nivea	Oryza sativa		
Paso Ancho	Brassica spp.	Panicum barbinode		
Peralta	Camellia japonica	Pelargonium zonale		
San Lucas	Carissa grandiflora	Persea americana		
San Pedro	Citrus limonia	Phaseolus vulgaris		
Santa Ana	Coffea arabica	Psidium guajava		
Villa Quesada	Coleus blumei	Rosa sp.		
Waldeck	Dahlia rosea	Sanchezia nobilis		
	Dianthus barbatus	Sida rhombifolia		
	Elaphrium sinaruba	Solanum seafortianum		
	Ficus carica	Spondias mombin		
	Guazuma ulmifolia	Tetragonia expansa		
	Hamelia erecta	Verbesina turbacensis		
	Hibiscus esculentus	Vernonia brachiata		
	Impatiens balsamina	Zea mays		
	Ipomoea batatas			
Cicadella pardalina Fowl.				
Granadilla	Amygdalus persica	Eugenia uniflora	Through- out year	
Guadalupe	Anacardium occidentale	Ligustrum japonicum		
Sabanilla	Casuarina equisetifo- lia	Malus sylvestris		
San Dimas	Citrus grandis	Morus rubra		
San Pedro	Citrus limonia	Parkinsonia aculeata		
	Citrus nobilis de- liciosa	Prunus armeniaca		
	Citrus sinensis	Rheedia edulis		
	Coffea arabica	Spondias mombin		
Cicadella pulchella Guer.				
Coyolar	Brassica oleracea	Gramineae	May 28	
El Cacao	capitata	Hibiscus rosa-sinensis	July 2	
Grecia	Crotalaria retusa	Jatropha urens	Sept. 13-	
	Fuchsia sp.	Lantana camara	18	

Cicadella pulchella--Cont'd	C o l l e c t e d o n	Date	Notes
Guadalupe Orosi Paso Ancho San Pedro Ujarras	Phaseolus vulgaris Sida rhombifolia Vernonia brachiata		
Cicadella reservata Fowl. El Cacao Paso Ancho San Pedro Waldeck	Acnistus arborescens Eugenia uniflora Impatiens balsamina Jasminum sambac Pelargonium zonale	Sept. 13 Nov. 12- Dec. 25 Feb. 4 10	Tabernaemontana coronaria Terminalia catappa Vernonia brachiata
Cicadella sanguineolenta Coque. Peralta	Artocarpus communis	Feb. 14	
Cicadella satelles Fowl. San Pedro	Citrus sinensis	Sept. 11	
Cicadella sexlineata Sign. Guadalupe San Isidro San Pedro	Citrus sinensis Duranta plumieri Ficus religiosa Ipomoea batatas Lycopersicum esculentum Malacra radiata Mentha sativa Pelargonium zonale	Through- out year	Always abundant on geraniums.
Cicadella similis Walk. Alajuela Coyolar El Cacao San Antonio San Pedro Santa Ana Villa Quesada	Canna indica Capriola dactylon Colocasia esculenta Daucus carota Diatheus barbatus Hamelia erecta Mangifera indica	Jan. 26- May 24 Aug. 10- Dec. 20	Musa sapientum Panicum bartinode Paspalum notatum Phaseolus vulgaris Raphanus sativus Tetragonia expansa Tropaeolum majus

C o l l e c t e d o n			Date	Notes
Cicadella testudinaria Fowl.	Annona cherimola	Persea americana	Jan. 8-29	
Coyolar	Coffea arabica	Sida rhombifolia	Feb. 16	
Granadilla	Bauvardia humboldti	Spondias cytherea	Aug. 9 to	
Guadalupe	Elaphrium simaruba		Sept. 19	
Paso Ancho	Gramineae			
San Antonio	Lagerstroemia indica			
San Pedro	Merium oleander			
	Phaseolus vulgaris		Nov. 6-7	
Cicadella variegata Fab.				
El Cacao				
Cicadula maidis DeLong and	Crotalaria juncea		July 13-	Abundant and harm-
Walcott	Zea mays		Dec. 10	ful on young corn.
San Pedro				
Deltoccephalus flavicosta	Phaseolus vulgaris		Nov. 7	
Stahl	Tetragonia expansa		Dec. 26	
El Cacao				
San Pedro				
Diestostemma albipenne Fab.	Amygdalus persica	Taetsia fructicosa	Jan. 5-	Causes severe tip-
Granadilla	Citrus medica		May 18	wilt of coffee.
Guadalupe	Coffea arabica		Sept. 10-	
San Pedro	Pyrus communis		Oct. 25	
Diestostemma rugicolle Sign.	Asparagus plumosus	Coffea arabica	Through-	
Granadilla	Bixa orellana	Taetsia fructicosa	out	
Paso Ancho	Citrus limonia		year	
San Pedro	Citrus sinensis			
Euscelis obscurinervis Stahl	Gramineae		Jan. 26	
San Isidro				
Graphocephala anceps Fowl.	Persea americana		Sept. 17	
Coyolar	Spondias mombin			
San Pedro				

C o l l e c t e d o n			Date	Notes
Graphocephala coccinea Forst. San Lucas San Pedro Ujarras	Amygdalus persica Annona cherimola Calyptanthos costaricensis Citrus nobilis deliciosa Citrus sinensis Codiaeum variegatum Coffea arabica Ficus religiosa Hibiscus rosa-sinensis Jatropha urens Lippia berlandieri	Malus sylvestris Mangifera indica Persea americana Prunus armeniaca Prunus salicina Pyrus communis Rosa sp. Sambucus mexicanus Schinus molle Tetragonia expansa Vernonia brachiata Vicia faba	Through-out year	
Graphocephala urbana Stahl San Pedro	Impatiens balsamina Spondias mombin	Verbesina turbacensis Vernonia brachiata	Aug. 31 to Sept. 5 Dec. 20	
Graphocephala versuta Say Granadilla Paso Ancho San Dimas San Pedro	Canarium odoratum Citrus limonia Citrus sinensis Codiaeum variegatum Coffea arabica Eugenia uniflora	Ficus religiosa Mangifera indica Musa paradisiaca Pouteria caimito Spondias mombin	Through-out year	
Gypona scarlatina vinula Stahl Ochomogo San Pedro	Hamelia erecta Hymenaea courbaril Ipomoea sp.	Persea americana Solanum aculeatissimum	May 22-26 June 28 Oct. 5	
Gypona vulnerata Walk. Granadilla Paso Ancho San Dimas San Pedro	Amygdalus persica Annona cherimola Annona reticulata Calyptanthos costaricensis Cestrum macrophyllum	Chrysanthemum sp. Citrus aurantium Citrus limonia Citrus sinensis Coffea arabica	Through-out year	

Cypona vulnerata--Cont'd	Collected on	Date	Notes
	Eugenia uniflora Hibiscus rosa-sinensis Hicoria pecan Inga paterno Mangifera indica Panicum barbinode Persea americana		
Kolla fasciata Walk.	Capriola dactylon Paspalum notatum Phaseolus vulgaris Sida rhombifolia Tetragonia expansa	Through- out year	
Alajuela			
Coyolar			
El Cacao			
Quebrada Azul			
San Antonio			
San Pedro			
Santa Ana			
Villa Quesada			
Kolla geometrica Sign.	Citrus sinensis Lactuca sativa Phaseolus vulgaris	Oct. 10 Nov. 7 Dec. 31	
El Cacao			
San Pedro			
Oncometopia undata Fab.	Amygdalus persica Anacardium occidentale Anethum graveolens Calliandra grandiflora Citrus grandis Citrus nobilis de- liciosa Citrus sinensis Coffea arabica Erythrina rubrinervia Eriobotrya japonica Guaraca caoba	Jan. 5 to Oct. 16	Most abundant in lower altitudes.
Coyolar			
Grecia			
Guadalupe			
Lagunillas			
Ochomogo			
Orosi			
Rio Segundo			
San Pedro			
Ujaras			

COCCIDAE

C o l l e c t e d o n		Date	Notes
Aspidiotus camelliae Sign. San Pedro	Mangifera indica Pyrus communis	Feb. 23 July 3	
Asterolecanium pustulans Ckll. Coyolar El Cacao	Merium oleander	Sept. 17 Nov. 7	
Aulacaspis pentagona Targ. Paso Ancho San Pedro	Amygdalus persica Capsicum annuum Diospyros kaki Diospyros virginiana Hibiscus mutabilis Hicoria pecan	Through- out year	Very abundant and injurious.
Ceroplastes cirripediformis Const. Paso Ancho San Pedro	Diospyros kaki Diospyros virginiana Gonolobus edulis Persea drymifolia	Jan. 23 to Feb. 2 Aug. Oct.	
Ceroplastes floridensis Const. Granadilla Peralta Quebrada Azul San Pedro Santa Ana	Amygdalus persica Calyptranthes costaricensis Citrus aurantifolia Citrus sinensis Citrus sp. (toronjo) Coffea arabica Diospyros kaki Diospyros virginiana Eriobotrya japonica	Through- out year	
Chrysomphalus dictyospermi Morg. San Pedro	Rosa sp.	April June 30	Very harmful on roses and young orange trees.

C o l l e c t e d o n			Date	Notes
Coccus acuminatus Sign.	Eriobotrya japonica		Feb. 14	
Cascajal	Jasminum grandiflorum		March 7	
Paso Ancho	Jasminum sambac		May 31	
Peralta	Mangifera indica		Oct. 7	
Coccus hesperidum L.	Citrus aurantifolia	Psidium guajava	Jan. 21-	
Guadalupe	Citrus sinensis	Solanum seaforthianum	Feb. 4	
Paso Ancho	Diospyros kaki		Oct. 2-	
San Pedro	Eugenia uniflora		Dec. 28	
Tacares	Fortunella japonica			
Coccus viridis Green	Citrus sinensis		Sept. 18	
Lagunillas				
Eriococcus araucariae Mask.	Araucaria brasiliana		June 22	
San Pedro				
Fiorinia fioriniae Targ.	Camellia japonica		Through-	
San Pedro			out	
			year	
Icerya montserratensis Riley	Citrus sinensis		May 18	
& Howard	Mangifera indica		Sept. 17	
Coyolar				
San Pedro				
Ischnaspis longirostris Sign.	Coffea arabica		Apr. 3	
San Pedro				
Lepidosaphes beckii Newm.	Chalcas exotica		Through-	One of the most
Guadalupe	Citrus aurantifolia		out	harmful pests
Ochomogo	Citrus nobilis de-		year	on orange
Paso Ancho	liciosa			jessamine and
San Isidro	Citrus sinensis			on Citrus spp.
San Lucas	Citrus sp. (toronjo)			
San Pedro				

C o l l e c t e d o n			Date	Notes
Orthezia insignis Dougl. Naranjo Paso Ancho San Jose San Pedro	Coleus blumei Salvia splendens		Feb. 14 July 5 Aug. 14 Nov. 13	
Pseudischnaspis bowreyi Ckll. Ochomogo San Pedro	Annona cherimola Diospyros kaki Diospyros virginiana		Jan. 1- Dec. 27	Kills rose bushes.
Pseudococcus citri Risso Granadilla San Pedro	Casimiroa edulis Citrus aurantium Citrus limonia Citrus nobilis de- liciosa		Feb. 17 June 5-20 Aug. 7-27 Dec. 21- 28	Especially harmful on young trees and among coffee flowers and fruit.
Pseudococcus nipae Mask. San Jose San Pedro	Chamaedora bifurcata Persea americana Psidium guajava		April 25 June 4-30	
Pseudococcus virgatus Ckll. Coyolar	Codiaeum variegatum Persea gratissima		Sept. 16	
Pulvinaria psidii Mask. San Pedro	Canarium odoratum Diospyros kaki Lucuma mammosa		Through- out year	
Saissetia hemisphaerica Targ. Alajucla Coyolar El Cacao Guadalupe Paso Ancho Peralta San Antonio	Annona muricata Asparagus officinalis Casimiroa edulis Cedrela montana mexi- cana Citrus aurantifolia Citrus aurantium Citrus grandis		Through- out year	Abundant and very harmful on tender new growth.
	Pouteria caimito Psidium guajava			
	Citrus limonia Citrus medica Citrus nobilis de- liciosa Citrus sinensis Cycas revoluta Cyphomandra betacea Coffea arabica			

Saissetia hemisphaerica-- Cont'd.	C o l l e c t e d o n	Date	Notes
San Dimas	Diospyros kaki		
San Isidro	Diospyros virginiana		
San Pedro	Eugenia uniflora		
Santa Barbara	Gardenia florida		
	Hamelia erecta		
	Jacobinia coccinea		
	Mammea americana		
	Mangifera indica		
	Morus rubra		
	Nephrolepis sp.		
	Pereskia aculeata		
	Persea gratissima		
Saissetia nigra Nietn. San Pedro	Annona cherimola	Jan. 12	
	Capsicum annuum	Apr. 4-19	
	Diospyros kaki	Nov. 13	
Saissetia oleae Bern. Paso Ancho San Pedro	Elighia sapida	Jan. 10-26	
	Cassia spectabilis	Feb. 26	
	Diospyros kaki	June 5	
	Fortunella japonica	Aug. 15-20	
	Hicoria pecan	Dec. 25	
	Pyrus communis	Feb. 4	
	Jasminum sambac	May 31	
Selenaspidus articulatus Morg. Paso Ancho	Saccharum officinarum	Dec. 25	
Trionymus sacchari Ckll. El Cacao San Lucas		July 8	A heavy infestation on roots of sugar-
		Nov. 6-12	cane caused severe damage at El Cacao. in November.
FULGORIDAE			
Acanalonia virescens Stahl Paso Ancho San Pedro	Cymbopogon rufus	Aug. 17	
	Erythrina rubrinervia	Nov. 30	
	Persea americana	Dec. 25	
	Spondias mombin		

	C o l l e c t o n			Date	Notes
	Acnistus arborescens	Vernonia brachiata			
Bothriocera tinealis Burm.					
Muelle	Calea urticifolia			March 28,	
Ochomogo	Calliandra grandiflora			29	
Orosi	Hedychium coronarium			May 18-28	
San Pedro	Pennisetum purpureum			Sept. 13	
Villa Quesada	Spondias mombin			Nov. 13-19	
Colgorma proxima Fowl.					
San Pedro	Ficus carica			Aug. 31	
Colpoptera sinuata Burm.					
Granadilla	Cestrum lanatum	Gardenia florida		Through-	
Paso Ancho	Cestrum macrophyllum	Gomphrena globosa		out	
San Pedro	Coffea arabica	Hibiscus rosa-sinensis		year	
	Dovyalis hebecarpa	Lippia berlandieri			
	Ficus religiosa	Spondias mombin			
	Galinsoga hebecarpa	Vernonia brachiata			
Copicerus irroratus Swartz					
Santa Ana	Gramineae			Nov. 22	
Cyrpoptus belfragei Stahl					
El Cacao	Phaseolus vulgaris			Nov. 7	
Flatoides humeralis Walk.					
Granadilla	Coffea arabica			Sept. 10	
				Oct. 25	
MEMBRACIDAE					
Aconophora laticornis Walk.					
Guadalupe	Croton gossypifolium			Jan. 15	
San Pedro				May 3	
Aconophora pallescens Stahl					
Grecia	Acacia cyanophylla	Anacardium rhinocarpus		Through-	
Ochomogo	Amygdalus davidiana	Annona cherimola		out	
Paso Ancho	Amygdalus persica	Bixa orellana		year	
Peralta	Anacardium occidentale	Callistemon lanceola-			
		tum			Caused serious damage to papaya and avocado, preventing the former from blooming.

Aconophora pallescens-- Cont'd. San Pedro	C o l l e c t e d	Date	Notes
	Calyptranthes costaricensis		Hibiscus rosa-sinensis
	Carica papaya		Hymenaea courbaril
	Cestrum aurantiacum		Lagerstroemia speciosa
	Chrysophyllum cainito		Malus sylvestris
	Citrus aurantium		Mangifera indica
	Citrus limonia		Pennisetum purpureum
	Citrus nobilis deliciosa		Persea americana
	Citrus sinensis		Persea drymifolia
	Coffea arabica		Phaseolus vulgaris
	Cydonia oblonga		Phoebe tonduzii
	Dovyalis hebecarpa		Pouteria cainito
	Ficus religiosa		Prunus cerasifera
			Spondias mombin
Acutalis fusconervosa Fairm.		Nov. 7	
El Cacao			
Aethalion quadratum Fowl.			
Guadalupe	Persea americana	Feb. 16	Causes deformation
Orosi	Persea drymifolia	to	of avocado branches.
San Jose	Phoebe tonduzii	Oct. 5	
San Pedro			
Aethalion reticulatum L.			
San Pedro	Canarium odoratum	Jan. 3-	
	Casuarina equisetifolia	19	
	Erythrina rubrinervia	Apr. 6	
	Phoebe tonduzii	July 12	
	Terminalia catappa	Nov. 20	
		Dec. 30	
Alchisme grossa Fairm.			
Guadalupe	Croton gossypifolium	Jan. 24	
	Cyphomandra betacea	Feb. 16	
	Solanum lanceolatum sinuatum	June 5	

C o l l e c t e d o n			Date	Notes
Antianthe expansa Germ. La Holanda Paso Ancho Peralta San Isidro San Pedro Santa Ana Sarchi Villa Quesada	Acnistus arborescens Capsicum annuum Cestrum aurantiacum Cestrum lanatum Cestrum macropnyllum Coffea arabica	Erythrina rubrinervia Nicotiana tabacum Persea americana Solanum aculeatissimum Vernonia brachiata		Especially harmful on pepper plants.
Bolbonota inaequalis Fab. Coyolar El Cacao Granadilla Orosi Paso Ancho San Pedro	Acnistus arborescens Calea urticifolia Calyptranthes costari- censis Camellia japonica Canarium odoratum Casuarina equisetifo- lia Cinnamomum camphora Citrus limonia Citrus sinensis Coffea arabica Diospyros kaki Dovyalis hebecarpa Eugenia jambos Eugenia uniflora	Ficus religiosa Fortunella japonica Hicoria pecan Hymenaea courbaril Malus sylvestris Mammea americana Mangifera indica Morus rubra Persea americana Persea drymifolia Pouteria caimito Prunus armoniaca Prunus salicina Rosa sp.	Through- out year	
Bolbonota insignis Fowl. Coyolar El Cacao San Antonio San Pedro	Calyptranthes costari- censis Casuarina equiseti- folia Coffea arabica Diphyssa robinoides Ficus religiosa Grevillea robusta	Guarea caoba Mangifera indica Morus rubra Persea americana Phaseolus vulgaris Saccharum officinarum	Jan. 3- Nov. 7	

C o l l e c t e d o n			Date	Notes
Campylocentrus hamifer F. airm. San Pedro	Chayota edulis Spondias mombin		Aug. 31 Dec. 13	
Cyphonia clavata Fab. Cuesta del Macho Sarchi Villa Quesada Waldeck	Cestrum lanatum Eupatorium odoratum Vernonia brachiata		Feb. 10 March 25-27 Aug. 14	
Enchenopa lanceolata Stoll Orosi Paso Ancho San Dimas San Pedro	Casuarina equiseti- folia Croton gossypifolium Coffea arabica Cydonia oblonga	Cytisus fragrans Diphysa robinoides Erythrina rubrinervia Hicoria pecan Parkinsonia aculeata	Jan. 10- Nov. 19	
Entylia sinuata Fab. Cuesta del Macho El Cacao Orosi Paso Ancho San Jose San Pedro Villa Quesada	Calca urticifolia Coffea arabica Coix lachryma-jobi Crotalaria retusa Dahlia rosea Jacobinia coccinea Persea americana Persea drymifolia	Phaseolus vulgaris Vernonia brachiata	Feb. 15 May 28 Sept. 13- Dec. 25	
Erechtia sallaci Fowl. San Pedro	Anacardium occidentale Malus sylvestris Persea drymifolia		June 12- Dec. 26	Injurious to avocado; causes fruit to drop.
Heteronotus nodosus Germ. El Cacao Granadilla Guadalupe San Antonio	Inga paterno		July 2 Oct. 25 Nov. 7	

C o l l e c t e d o n			Date	Notes
Horiola picta Coque. Waldeck	Theobroma cacao		Feb. 13	
Hypsoprora coronata Fab. Orosi	Calea urticifolia		Sept. 13	
Membracis mexicana Guer. Granadilla Guadalupe Paso Ancho San Dimas San Pedro Waldeck	<p>Acnistus arborescens Amygdalus persica Anacardium occidentale Anacardium rhinocarpus Annona cherimola Annona muricata Callistemon lanceo- latum Calyptanthus costari- censis Camellia japonica Canangium odoratum Casuarina equiseti- folia Citrus limonia Citrus sinensis Citrus sp. (toronjo) Coffea arabica Cydonia oblonga Diospyros kaki Diospyros virginiana Dovyalis hebecarpa</p>	<p>Erythrina rubrinervia Eugenia uniflora Hamelia erecta Hibiscus rosa-sinensis Hicoria pecan Hymenaea courbaril Jacobinia coccinea Lagerstroemia speciosa Malus sylvestris Mammea americana Mangifera indica Morus rubra Persea americana Phoebe tonduzii Pouteria caimito Prunus salicina Psidium guajava Pyrus communis Solanum seafortianum Terminalia catappa</p>	Through- out year	Seriously damages many plants.
Micrutalis albivitta Fowl. San Pedro	Croton gossypifolium		Dec. 22	
Polyglypta dispar Fowl. Ochomogo	Verbesina turbacensis		June 28	

C o l l e c t e d o n			Date	Notes
Polyglyptodes cucullatus Fowl. San Pedro	Diphysa robinoides		Dec. 13	
Poppea capricornis Fowl. Cuesta del Macho	Eupatorium odoratum		March 25	
Pterygia bituberculata Fowl. San Pedro	Inga edulis		June 28	
Spongophorus ballista Germ. Paso Ancho San Pedro Villa Quesada	Erythrina rubrinervia Indigofera suffructi- cosa Morus rubra Musa paradisiaca	Panicum barbinode Solanum tuberosum Spondias mombin Zinnia elegans	March 26 June Aug. 30 December	
Stictocephala festina Say Coyolar San Isidro San Pedro	Codiaeum variegatum Crotalaria juncea Hibiscus rosa-sinensis Persea americana	Phaseolus vulgaris Tetragonia expansa	Jan. 26- Feb. 26 Sept. 16 Dec. 27	
Umbonia crassicornis Am. & Serv. Guadalupe Paso Ancho San Lucas San Pedro	Calliandra grandiflora Enterolobium cyclocar- pum Pyrus communis		May 26- July 7	Damages plants by egg scars.
Vanduzea segmentata Fowl. Orosi Paso Ancho	Acnistus arborescens Byrsonima crassifolia		Sept. 13 Oct. 7	

H Y M E N O P T E R A

Atta sexdens L. El Cacao	Many species of plants	Sept. 13 to Nov. 22	One of the serious pests of Costa Ric
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C o l l e c t e d o n			Date	Notes
Atta sexdens--Cont'd. Grecia Orosi Santa Ana				
	Solenopsis geminata Fab. Cartago	Capsicum annuum Chalcas exotica Citrus aurantium Citrus limonia Citrus medica Citrus nobilis de- liciosa Citrus sinensis Coffea arabica Diospyros kaki Dovyalis hebecarpa Ficus religiosa		
	Paso Ancho San Pedro Santa Barbara	Hibiscus rosa-sinensis Hymenaea courbaril Impatiens balsamina Malus sylvestris Persea americana Poinsettia pulcherrima Psidium guajava Pyrus communis Schinus molle Sterculia diversi- folia Zea mays	Through- out year	Seriously damages trees by cutting twigs, particularly avocado and citrus also a household pest.
Trigona amalthea Oliv. Grecia		Caesalpinia pulcherri- ma	Dec. 6	In flowers.
Trigona cupira Smith San Pedro		Asparagus officinalis Dombeya wallichi Rosa sp.	March 13 June	In flowers; best pollinator of asparagus.
Trigona ruficrus corvina Cr. Escasu		Citrus sinensis	Jan. 14	Damages orange by eating flowers and tender foliage.

L E P I D O P T E R A

Agraulis juno Cr. Paso Ancho San Pedro	Passiflora edulis Passiflora ligularis	Apr. 15- May 31	Larvae damage grandilla.
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C o l l e c t e d o n			Date	Notes
Agraulis poeyi Butl. San Pedro	Passiflora ligularis		Apr. 3 to March 14	Larvae damage gran- adilla.
Anteos clorinde Godt. Paso Ancho	Musa sapientum		July 29	
Automeris boucardi Druce Paso Ancho San Pedro	Erythrina rubrinervia Inga laurina Malus sylvestris		Jan. 15 July 6 Nov. 21 to Dec. 27	Defoliates apple in late December.
Automeris rubescens Walk. Guadalupe San Pedro	Cinnamomum camphora Coffea arabica Nephrolepis sp.		Jan. 31 May 29	
Azochis gripusalis Walk. San Pedro	Ficus carica		Jan. 24 to May 2	Seriously injures fig by boring branches.
Bertholdia specularis H. & S. San Pedro	Citrus nobilis de- liciosa Citrus sinensis		Jan. 11 June 7	
Dicentria violacens H. & S. San Pedro	Diospyros virginiana		June 18	Reared on this plant.
Dircenna klugii Geyer San Pedro	Solanum lanceolatum sinuatum		Jan. 25	Reared on this plant
Eantis pallida Feld. Ochomogo San Isidro San Pedro	Casimiroa edulis Citrus aurantifolia Citrus aurantium	Citrus limonia Citrus sinensis	Jan. 10 to Dec. 28	Seriously injures citrus.
Ecpantheria eridane Hbn. San Pedro	Prunus salicina		Nov. 20	Taken ovipositing.

C o l l e c t e d o n

Notes

Date

Euglyphis melancholica Butl. San Pedro	Persea americana	Sept. 20	
Halisidota underwoodi Roth. San Pedro	Cydonia oblonga Citrus sinensis Ficus religiosa	Jan. 5- Aug. 21	
Hemerocampa costaricensis Schaus San Pedro	Mangifera indica Persea americana	Feb. 6 Feb. 16	
Hermionodes porrecta Walk. Guadalupe	Alnus acuminata	Jan. 19 to Apr. 15	Larvae bore in jaul.
Hylesia alinda Druce Guadalupe Paso Ancho San Pedro	Citrus aurantium Lagerstroemia indica Malus sylvestris Pelargonium sp.	Jan. 1- July 13 Nov. 28	Larvae on apple and sour orange.
Hyphypena colpodes Wlsm. Guadalupe San Pedro	Persea americana Persea drymifolia	Jan. 5 to Dec. 18	Seriously damaging avocado.
Hypsipyla grandella Zell. Coyolar San Pedro	Cedrela glaziovii pub- erula Cedrela montana maxi- cana Guarea caoba	July 2 to Oct. 10	Damages caoba and cedro; a serious pest.
Jocara claudalis Mosch. Alajucla Coyolar El Cacao Guadalupe Paso Ancho San Isidro San Pedro	Persea americana Persea drymifolia	Through- out year	A serious pest of avocado.

		Collected on		Dates	
Jocara subcurvalis Schaus San Pedro	Persea americana Persea drymifolia			Jan. 5 to Nov. 20	A pest of avocado.
Laphygma frugiperda S. & A. San Pedro	Zea mays			Aug. 7	
Leucoptera coffeella Guer. & Prrott. El Cacao Granadilla Guadalupe San Antonio San Pedro	Coffea arabica			Jan. 24 to May 14. Oct. 25- Dec. 10	A pest of coffee.
Machimia erythema Wlsm. San Pedro	Persea americana			Feb. 18	Adult emerged from larva on avocado.
Megalopyge costaricensis Sch. Guadalupe San Pedro	Citrus limonia Citrus sinensis Coffea arabica Malus sylvestris			Jan. 10 to June 1	Larva called "gusano de pollo."
Mesocondyla concordalis Hbn. Coyolar San Pedro Santa Ana	Couralea rosea			July 12 to Nov. 22	Damaging this tree.
Papilio anchisiades idaeus Fab. Alajuela Coyolar San Jose San Pedro	Casimiroa edulis Citrus limonia Citrus nobilis de- liciosa Citrus sinensis			Feb. 23 June 5 to Nov. 22	An "orange dog," a pest of importance on citrus.

	C o l l e c t e d o n		Date	Notes
	Anethum graveolens			
Papilio polyxenes stabilis R. & J. Ochomogo			June 28	
Papilio thoas autocles Roth. San Jose San Pedro	Citrus sinensis Ruta graveolens		June 18 Nov. 28	Reared.
Phobetrion hipparchia Cr. San Pedro	Citrus sinensis Coffea arabica Hymenaea courbaril Lagerstroemia speciosa	Malus sylvestris Persea americana Vernonia brachiata Vitis vinifera	Apr. 30 July 18 to Nov. 28	Defoliates small trees.
Plutella maculipennis Curt. San Pedro	Brassica oleracea capitata		Apr. 5	Very abundant on cabbage.
Sibine apicalis Dyar Guadalupe San Pedro	Citrus sinensis Taetsia fruticosa		Feb. 5	Larvae collected on dracena Nov. 27. Adult emerged Feb. 5.
Stenomma anonella Sepp. Coyolar San Dimas San Pedro	Annona cherimola Annona muricata Annona squamosa		July 24 to Sept. 17	Destroys fruit.
Stenomma sororia Zell. Paso Ancho San Pedro	Persea americana Persea drymifolia Phoebe tonduzii		Jan. 5 to Dec. 25	A serious pest of avocado, particu- larly to young grafts.
Tincola uterella Wlsm. San Pedro	Household goods		Through- out year	A clothes moth.

O R T H O P T E R A

C o l l e c t e d o n		Date	Notes
Coccothotus rarus Rehn San Pedro	Amygdalus persica Annona squamosa Citrus grandis Citrus nobilis del- liciosa Citrus sinensis Coffea arabica Malus sylvestris		Eats leaves and tender stems of a wide variety of plants; also damages plants by ovipositing slits; also a pantry pest.
Conocephalus cinereus Thunb. El Cacao San Pedro	Panicum barbinode Phaseolus vulgaris Rosa sp.	May 24 Nov. 7 to Dec. 27	A tettigoniid; es- pecially harmful on grasses.
Ellipes minuta Scudd. El Cacao San Pedro	Capriola dactylon Capsicum annuum Fragaria chiloensis	Jan. 9 Oct. 5 to Dec. 27	
Insara intermedia Bruner Coyolar Guadalupe San Pedro	Acalypha sp. Casuarina equiseti- folia Citrus aurantium Hibiscus rosa-sinensis	Jan. 10 to Sept. 18 Dec. 13 Dec. 31	Harmful.
Neoxabea bipunctata Deg. San Pedro	Amygdalus persica Persea americana	Jan. 18 June 4	A gryllid.
Panchlora cubensis Sauss. San Pedro	Coffea arabica Zea mays	Oct. 1 to Nov. 13	A green roach.
Paratettix mexicanus abortus Hancock San Pedro	Galinsoga hispida	Aug. 30	Acridid.

C o l l e c t e d o n			Date	Notes
Stored products				
Periplaneta australasiae Feb. San Pedro			Dec. June	Very troublesome household pest.
Pycnopalpa bicordata Serv. San Pedro	Citrus sinensis		Oct. 22	
Rhipipteryx biolleyi Sauss. San Pedro	Annona cherimola Annona reticulata Ipomoea batatas	Malacra radiata Tripsacum laxum	May 2 to Oct. 5	
Schistocerca impleta Walk. Ochomogo Paso Ancho San Pedro	Amygdalus persica Beta cicla. Boehmeria nivea Citrus aurantium Citrus limonia Citrus nobilis deliciosa Citrus sinensis Citrus sp. (tangelo) Coffea arabica Cupressus benthami	Dahlia rosea Ficus carica Fortunella japonica Fragaria chiloensis Hibiscus rosa-sinensis Malus sylvestris Persea drymifolia Tetragonia expansa Vigna sesquipedalis	Feb. 17 to July 12 Oct. 5 to Dec. 27	Nymphs and adults very harmful to a wide variety of plants.
Taeniopoda varipennis Rehn San Pedro	Asparagus plumosus Coleus blumei Coreopsis lanceolata Cucurbita pepo Hemerocallis sp.	Hibiscus rosa-sinensis Rosa sp. Sambucus mexicana Spiraea prunifolia	Sept. 5	Acridid; very abundant in cemeteries, where it destroys flowers.

C O R R O D E N T I A

Nescus flavatus Navas San Isidro San Pedro	Dovyalis hebecarpa Morus rubra Punica granatum	Jan. 26 Apr. 18 Aug. 6
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THYSANOPTERA

	Collected on	Date	Notes
Gynaikothrips uzeli Zimm. El Cacao	Ficus pitida	Nov. 12	Causes new leaves to curl; effect disappears later.
Triothrips zeteki Hood Paso Ancho San Pedro	Persea americana Persea drynifolia	Jan. 9 to March 27 Aug. 20 to Dec. 27	A serious pest of avocado, particularly to newly budded stock.
Selenothrips rubrocinctus Giard Paso Ancho	Mangifera indica	Feb. 14	

DERMAPTERA

Dermopterus fasciatus Santa Ana	Oryza sativa Los Mays	Nov. 22	
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